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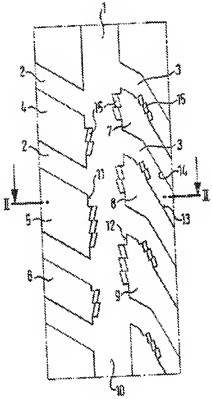
(54) **DESSIN DE BANDE DE ROULEMENT POUR PNEU**
(54) **TREAD PATTERN FOR VEHICLE TIRE**



(57) A tread pattern for a vehicle tire includes tread grooves being disposed essentially diagonally to the circumferential direction and defining tread blocks therebetween. In order to improve the transmission of traction and braking forces, projections are provided from sidewalls of the tread blocks along the tread grooves. The projections have a V-shaped expansion towards the bottom of the groove and a saw-tooth-like stepping in the longitudinal direction of the tread grooves.

Abstract of the Disclosure:

A tread pattern for a vehicle tire includes tread grooves being disposed essentially diagonally to the circumferential direction and defining tread blocks therebetween. In order to improve the transmission of traction and braking forces, projections are provided from sidewalls of the tread blocks along the tread grooves. The projections have a V-shaped expansion towards the bottom of the groove and a saw-tooth-like stepping in the longitudinal direction of the tread grooves.

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TREAD PATTERN FOR VEHICLE TIRE

Specification:

The invention relates to a tread pattern for a vehicle tire with tread grooves being disposed essentially diagonally to the circumferential direction and defining tread blocks therebetween.

In the tread pattern structures for vehicle tires, traction, braking and those forces which are generated by and act in curves are transmitted by grooves running more or less diagonally to the circumferential direction. In addition, longitudinal grooves may be provided which are decisive for the lateral stability of the tire and are intended to prevent aquaplaning.

Transverse tread edges coming into contact with the ground are essential for the transmission of the traction and braking forces by a vehicle tire. However, excessive splitting-up of the tread pattern by transverse grooves is restricted by structural limits.

It is accordingly an object of the invention to provide a tread pattern for a vehicle tire, which overcomes the hereinafore-mentioned disadvantages of the heretofore-known

devices of this general type and which improves the transmission of traction and braking forces.

With the foregoing and other objects in view there is provided, in accordance with the invention, a tread pattern for a vehicle tire comprising:

a tire body having a circumferential direction;

said tire body carrying spaced tread blocks which between them define tread grooves that extend in said tire body essentially diagonally to the circumferential direction, and said tread grooves having a bottom and a longitudinal direction;

said tread blocks having side walls limiting said tread blocks relative to said tread grooves, and said side walls having projections;

said projections being expanded in a V-shape towards said bottom of said tread grooves and said projections having saw-tooth-like steps extending in the longitudinal direction of said tread grooves;

said tread blocks having different length and the number of said projections provided thereon varying in accordance with the length of the respective tread blocks.

Due to the transverse edges and surfaces which are created in this way, and depending on the direction of the structure, additional forces may be transmitted, which is of particular advantage, especially during operation in winter in deep snow.

The tread pattern preferably includes at least one longitudinal groove limited by the tread blocks, and the

projections are disposed at the sidewalls of the tread blocks limiting the longitudinal groove.

In accordance with a further preferred feature of the invention, the tread blocks have an upper edge, and the saw-tooth-like steps of the projections extend from the upper edge of the tread blocks towards the bottom of the tread grooves, as seen in a longitudinal extension of the projections.

However, in accordance with an added preferred feature of the invention, the projections are flush with the upper edges of the tread blocks.

In accordance with an additional preferred feature of the invention, each of the tread blocks has at least two projections in the central region of its sidewall.

Other features are set forth in the appended claims.

Although the invention is illustrated and described herein as embodied in a tread pattern for a vehicle tire, it is nevertheless not intended to be limited to the details shown,

since various modifications and structural changes may be made therein without departing from the spirit of the invention and within the scope and range of equivalents of the claims.

The construction and method of operation of the invention, however, together with additional objects and advantages thereof will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.

Fig. 1 is a fragmentary, diagrammatic, plan view of a tread section;

Fig. 2 is a cross-sectional view of the tread according to Fig. 1, which is taken along the line II-II of Fig. 1, in the direction of the arrows;

Fig. 3 is an enlarged, fragmentary, perspective view of the tread pattern, including a sidewall of a tread block with saw-tooth-like projections; and

Fig. 4 is a fragmentary, perspective view of the tread pattern with projections which are flush with the upper edge of a tread block.

Referring now to the figures of the drawing in detail and first, particularly, to Fig. 1 thereof, there is seen a tread section with a circumferential longitudinal groove 1 formed in a tire body shown in phantom lines, and transverse grooves 2 and 3 extending toward both sides in the tire body. The transverse grooves 2 have less of an incline relative the longitudinal groove 1 than the transverse grooves 3. The course of the transverse grooves 3 is additionally more sharply angled off and encloses a smaller angle relative to longitudinal groove 1. Tread blocks 4, 5 and 6 of different lengths and widths are disposed on one side of the longitudinal groove 1 and tread blocks 7, 8 and 9 of different lengths and widths are disposed on the other side of the longitudinal groove 1. The tread blocks are disposed between the transverse grooves 2 and 3 and possibly the longitudinal groove 1, although that is not absolutely necessary for this type of pattern. As is shown by the cross section of Fig. 2, these tread blocks usually have sidewalls 11 and 12 along both sides of the longitudinal groove 1, which expand in a slight V-shape towards a bottom 10 of the groove. The tread blocks also have sidewalls 13 and 14 along both sides of the transverse grooves 3.

In accordance with this invention, these respective sidewalls 11, 12 and 13, 14 of the tread blocks are provided with projections 15 in a V-shape expansion towards the bottom of the groove, with a saw-tooth-like stepping or graduation in

the longitudinal direction of the respective sidewalls 11, 12 and 13, 14 of the tread blocks.

This configuration of the offset projections 15 is shown very clearly by the perspective view according to Fig. 3 which illustrates a tread block 5 with its sidewall 11 along a longitudinal groove 1. These projections 15 with the saw-tooth-like stepping or graduation produce transverse surfaces 16 and 17 expanding towards the bottom 10 of groove and tapering towards an upper edge of the tread block 5, but still forming a narrower transverse edge 18. These transverse surfaces 16 and 17, as well as the corresponding transverse edge 18, allow additional forces to be absorbed and transmitted.

Although it is not shown in the perspective view of Fig. 3, similar projections 15 are provided on the opposite side at the tread blocks 7, 8 and 9, as well as in the transverse grooves 3, and possibly in the transverse groove 2, either along one side or along both sides of any of these transverse grooves.

Fig. 4 provides another perspective view of a tread block 5 where corresponding projections 20 are formed in such a way that they are flush with an upper edge 21 of the tread block. These projections 20 also produce transverse surfaces 22 and 23 expanding in a triangular shape towards the bottom. This

type of transverse surfaces is of particular advantage in sand or loose snow which penetrates into such tread grooves.

The respective projections 15 and 20 are provided at the center of the sidewall 11, 12 of any of the respective tread blocks 4, 5, 6 and 7, 8, 9. Each tread block should have at least two projections. However, for tread blocks with different lengths, a different number of projections of any of the tread blocks would be possible, and they may have gaps in between.

The illustrated embodiments are based on a tread pattern with at least one longitudinal groove. However, the basic principle also applies if several longitudinal grooves are provided and even if the tread pattern essentially is formed of transverse grooves alone. In the latter case, it is advisable to have these projections extend only into transverse grooves running diagonally relative to the circumferential direction in order to obtain an additional component for the respective transverse edges and transverse surfaces to be created in the rolling direction of the tire.

In this way, additional transverse surfaces and transverse edges may be created at the tread blocks with simple means, in order to improve the transmission of all of the forces that may occur.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A tread pattern for a vehicle tire comprising:

a tire body having a circumferential direction;

said tire body carrying spaced tread blocks which between them define tread grooves that extend in said tire body essentially diagonally to the circumferential direction, and said tread grooves having a bottom and a longitudinal direction;

said tread blocks having side walls limiting said tread blocks relative to said tread grooves, and said side walls having projections;

said projections being expanded in a V-shape towards said bottom of said tread grooves and said projections having saw-tooth-like steps extending in the longitudinal direction of said tread grooves;

said tread blocks having different length and the number of said projections provided thereon varying in accordance with the length of the respective tread blocks.

2. The tread pattern according to claim 1, wherein said tread grooves include at least one longitudinal groove being limited by said tread blocks, and said projections are also disposed at said sidewalls of said tread blocks limiting said longitudinal groove.

3. The tread pattern according to claim 1 or claim 2, wherein each of said tread blocks has at least two projections disposed centrally at said sidewalls.

4. The tread pattern according to any one of claims 1 to 3, wherein said tread blocks have an upper edge, and said saw-tooth-like steps of said projections extend from said upper edge of said tread blocks towards said bottom of said tread grooves, as seen in a longitudinal extension of said projections.

5. The tread pattern according to any one of claims 1 to 4, wherein said tread blocks have an upper edge, and said projections are flush with said upper edge of said tread blocks.

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Fig. 1

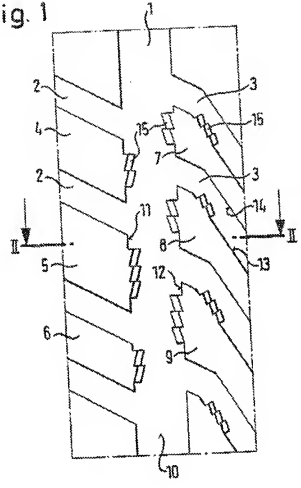

Fig. 2

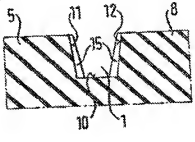

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Fig. 3

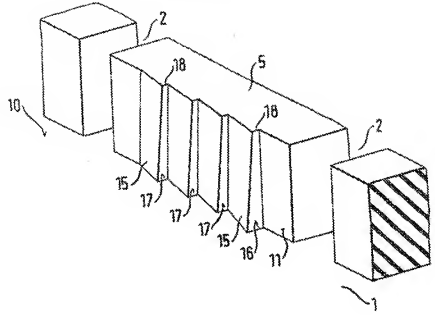
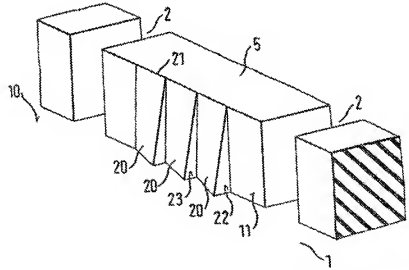


Fig. 4



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